VOICES of the BAY

From Ocean to Table

Through role-playing, teamwork and a little fate, this activity provides students with an opportunity to get an "insider's" view of what it takes to be an active stakeholder in a commercial fishery. Whether a boat owner, a dockside buyer, processing plant owner, distributor or retail seafood store operator, each student will get a deeper sense of the complex factors that determine the viability of a commercial fishery. Students will learn to understand the real costs that contribute to eventual market value, as well as experience some of the unanticipated gains or losses that can occur at any stage along the way.

NOAA National Oceanic and Atmospheric Administration U.S. Department of Commerce

PRESERVE AMERICA
Explore and Enjoy Our Heritage

National Marine Sanctuaries

Grade Level: 8-12, Community College

Time Frame

Preparation:

- 30 minutes to review complete module and prepare student materials.

Facilitation:

- One 50-minute class period for core activity
- Additional 1-2 class periods for optional extensions

Brief Overview

There are many steps involved in bringing a commercial seafood catch from the ocean to the dinner table. Each step is characterized by its own unique elements, with potential income and controlling expenses being two of the strongest drivers to determining success. External factors (weather, regulations, fuel prices) can also play a role in defining what it takes to get seafood from the ocean to the end user or customer.

Skills/Outcomes

- Students will learn how to analyze various costs/benefits associated with a particular fishery and will understand the various roles performed by **stakeholders** of that fishery.
- Students will learn how to calculate estimated revenues and expenses using data from a chart.
- Students will learn to evaluate real-world options and challenges related to a particular fishery.
- Students will be able to apply critical thinking and problem-solving skills to their analysis of various stakeholder terms and transactions.

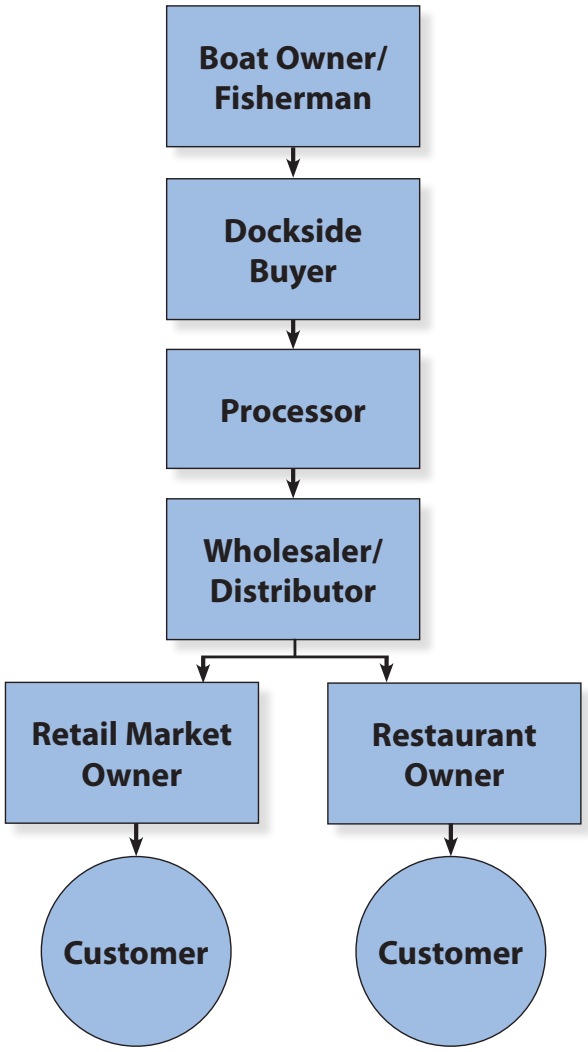


Figure 1. Stakeholders in the commercial fishing industry.

Lampara boat, circa 1930. (J. B. Phillips photograph; courtesy Tim Thomas, Monterey Maritime and History Museum.

Key Subjects/Standards

Mathematics, Economics, Natural Resources, Career Awareness

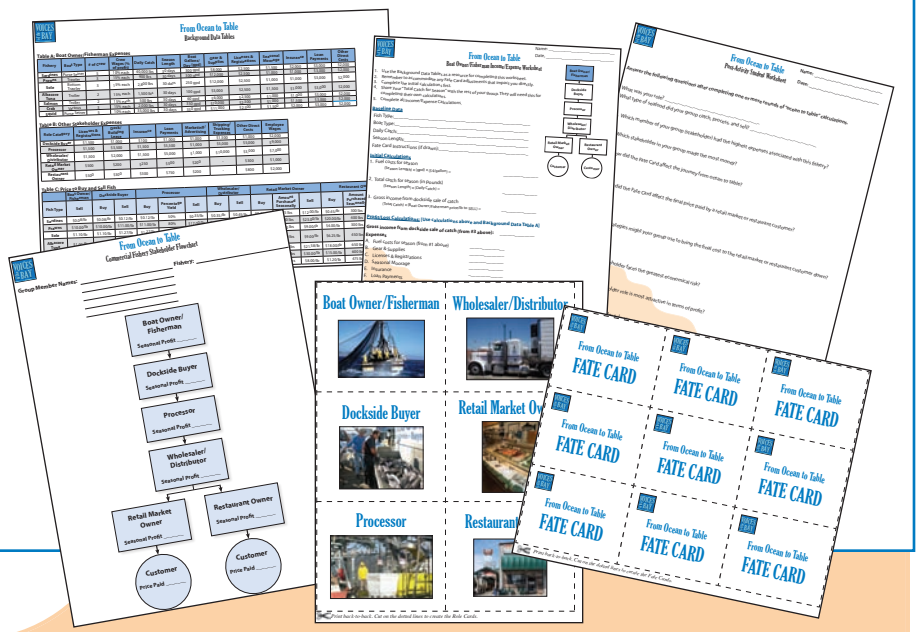
National	Science: NS.9-12.1 Science as Inquiry. NS.9-12.6 Personal and Social Perspectives: population growth, natural resources, environmental quality. Math: NM-NUM.9-12.3 Number and Operations: compute fluently and make reasonable estimates. NM-PROB.PK-12.1-12.4 Problem-solving: solve problems that arise in mathematical and in other contexts; apply and adapt a variety of appropriate strategies to solve problems. NM-PROB.CONN.PK-12.3 Connections: recognize and apply mathematics in contexts outside of mathematics. Economics: NSS-EC.9-12.2 Marginal Cost/Benefit. NSS-EC.9-12.8 Role of Price in Market System. NSS-EC.9-12.11 Role of Money.
California	Math: Algebra I (3.0) Students solve equations and inequalities involving absolute values. Algebra I (5.0) Students solve multi-step problems, including word problems, involving linear equations and linear inequalities in one variable and provide justification for each step. Algebra I (10.0) Students add, subtract, multiply, and divide. Students solve multi-step problems, including word problems, by using these techniques. Economics: Grade 12, (12.1) Students understand common economic terms and concepts and economic reasoning.
Ocean Literacy	6. The ocean and humans are inextricably interconnected. (b, e, g)

Teacher Preparation

1. Read entire activity and review all student handout materials and the From Ocean to Table PowerPoint in advance.
2. Print/copy student handouts and other materials listed in the Materials List.
3. Arrange tables to accommodate groups of 6 students.

Materials List

- ☐ 1 set of Role Cards per group of six students, cut into individual cards
- ☐ 3 sets of Income/Expense Worksheets per group of six students (worksheets represent 6 different stakeholders)
- ☐ 1 set of Fate Cards per class, cut into individual cards
- ☐ 1 Commercial Fishery Stakeholder Flowchart per group of six students
- ☐ 1 Commercial Fishery Stakeholder Flowchart transparency per class (optional)
- ☐ 1 Background Data Table sheet per student
- ☐ 1 Post-Activity Student Worksheet per student
- ☐ Pen/pencil for each student
- ☐ Calculator for each student or at least one for each group of 6 students



Instructional Strategies/ Procedures

Setting the Stage

1. Show students the From Ocean to Table PowerPoint presentation. These slides will introduce students to common fisheries in the Monterey Bay National Marine Sanctuary and the stakeholders engaged in these fisheries.

2. Divide students into groups of 6 and have each group sit together at a table.

3. At each table, place the following pre-sorted items:
   a. 1 set of Role Cards, shuffled and face down
   b. 3 sets of Income/Expense Worksheets (6 stakeholder roles to a set)
   c. 1 Background Data Table sheet per student
   d. 1 Commercial Fishery Stakeholder Flowchart per group

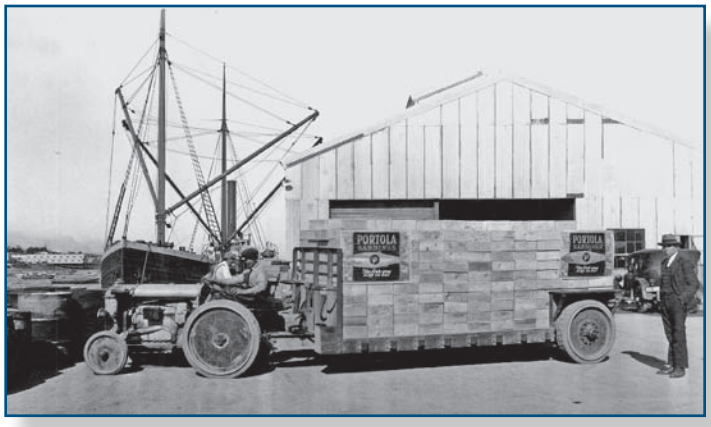
4. Have each student draw a Role Card from the pile on their table. Have students read the information on their Role Card and inform their tablemates of the role they selected.

Dockside seafood business in Moss Landing. (Photo: Lisa Uttal.)

Facilitating a Practice Round

5. Have students find the Income/Expense Worksheet corresponding to the role they selected.

6. Review the Income/Expense Worksheets and Background Data Tables with the whole class. Remind students of the progression from ocean to table illustrated in Figure 1 above and reproduced on each of their Income/Expense Worksheets. For most stakeholders, they will need to obtain a number from the stakeholder above them before they can complete their own worksheet.



Portola brand sardines were trucked from the cannery to the wharf for overseas shipment. Domestic shipments of sardines were done via railroad. (A. C. Heidrick photograph; courtesy Tim Thomas, Monterey Maritime and History Museum.)

7. Select a single fishery and have all student groups complete a practice round using the data from the same fishery. An alternative approach is to conduct a practice round with the whole class, walking them through each calculation step for one stakeholder role or all roles in a given fishery. Do this practice round prior to introducing the Fate Cards. Use the outline below to facilitate this practice round.
   a. Have students complete the top portion of the worksheets first, based on information on the Background Data Table sheet. Only the Boat Owner/ Fisherman will use Table A.
   b. The Boat Owner/Fisherman must complete his or her "Total Catch for the Season" (#2) before the Dockside Buyer and the Processor can begin their calculations.
   c. The Processor must complete his/her "**Yield** from Purchased Catch" (a percentage of the total catch delivered by the Dockside Buyer) before the Wholesaler/Distributor can begin their calculations.
   d. The Retail Market Owner and Restaurant Owner can complete their entire Income/Expense Worksheet from information on the Background Data Table sheet.

8. After all students have demonstrated their ability to read the data tables and complete the worksheet calculations, have them select a blank Income/Expense Worksheet that corresponds to their selected role.

Blocks of ice at the Moss Landing Harbor. (Photo: Lisa Uttal.)

9. Explain to the students that no two fishing seasons are identical in the world of commercial fishing and that fate can impact any or all stakeholders in a given fishery at any time. Brainstorm with the students for a minute or two on what factors might affect their expenses or income at any stage in the journey from ocean to table. After this brainstorm, invite one student from each group to draw a Fate Card, return to their group, and after reading the information on the card out loud to their group, place the card in the center of the table for group reference.

Completing a Round of "Ocean to Table"

10. Next, either assign each group a different fishery or have them select a fishery of their choice from the seven options (sardines, prawns, sole, etc.) available in the Background Data Tables. Using their specific fishery, have the student groups complete a round of "ocean to table" calculations. Remind students to address their Fate Card as part of their calculations.

11. Once the students in each group complete their Income/Expense Worksheets, have them share with each other the outcomes from their collective calculations and complete the Commercial Fishery Stakeholder Flowchart. Allow table groups time to discuss their own group's outcomes, especially the final prices paid by the retail and restaurant customers.

Duarte's Fish Market, circa 1900. (Courtesy Tim Thomas, Monterey Maritime and History Museum.)

Reflection and Discussion

12. Hand out to each student the Post-Activity Student Worksheet and allow students 10-15 minutes for completion.

13. Invite each table group to report briefly to the whole class the outcome of the journey from ocean to table for their particular fishery, how fate affected them, and the final price paid by the retail or restaurant customer for their fish when it reached the table. For additional discussion questions, have students share their responses from the Post-Activity Student Worksheet.

14. If time allows, or a second class period can be used, have the students repeat the activity in a different stakeholder role, with a different fishery, or with different Fate Cards. Remember to distribute a new set of Income/Expense Worksheets. Again, have the groups share their results. Did specific fisheries have the same outcomes as in the first round? If not, what factors contributed to a change in the outcomes?

15. Have students discuss, either in their groups or as a whole class, the insights from this simulation. Have them review the collection of flow charts where they recorded Seasonal Profit for each step for a particular fishery. Were they surprised by any of the outcomes? Given what they have learned so far, which fishery seems the most lucrative? The least lucrative? Are some fisheries operating at unsustainable margins? Are these fisheries delivering good value to the retail and/or restaurant customer?

Processing at the Moss Landing Harbor, 2008. (Photo: Lisa Uttal.)

Extensions & Connections

1. If time allows, have each group of students try all seven fisheries. After completing all seven, have them discuss the potential challenges associated with each fishery.

2. Have students research one or more of the fisheries profiled in this activity. How has the length of seasons varied over the years? What has contributed to these variations? Are the job opportunities increasing or decreasing in this fishery? What is the future outlook for this fishery? What factors will contribute to that future?

3. Have students research local retail or restaurant prices for fish. What causes variation in these prices from one vendor to the next? From season to season? Do these prices vary from one community to another? What might cause some of these variations?

Background

Fisheries are many things to many people. A fishery is defined by a particular seafood species and the collection of people and businesses that bring that seafood to the market. Worldwide, almost 40 million people are directly engaged in fishing and fish farming (i.e. **mariculture** and **aquaculture**) as a full-time or part-time occupation, and fishery products account for 15-16% of global animal protein intake. Overall, Americans are increasing their consumption of seafood as more products become available and more people realize the associated health benefits of eating fish. As of 2007, the U.S. annual per capita consumption of seafood and shellfish (in pounds of edible meat) was 16.3 lbs/person, up from 15.2 lbs/person in 2000. Putting that volume in terms of value, the U.S. population spent an estimated $61.9 billion for fishery products in 2004.

There are many stages involved in the catching, processing, distribution, and preparation of seafood. Figure 1 illustrates a basic flow chart of the typical stages in an active fishery. Many fisheries are more complex, involving numerous markets regionally or globally, with prices constantly in flux based on **supply and demand**.

Simply put, the fisherman and crew bring their catch to the harbor to be unloaded. They may sell their catch to a **dockside buyer** (who is probably buying many different types of fish from many different fishermen), who in turn sells it to a **processor** (who will process the catch) who sells it to a **wholesaler/distributor**). These distributors will then sell and deliver the catch to retail markets or restaurants, where it is ultimately purchased (usually at a much higher price than what the fisherman first sold it for) by a customer or **consumer**.

Offloading catch at Moss Landing Harbor, 2009. (Photo: Lisa Uttal.)

Liberty Market on Fisherman's Wharf, 1965. (MacDougall King photograph; courtesy Tim Thomas, Monterey Maritime and History Museum.)

There are many dynamic elements along the path from ocean to table. Fish populations, themselves, may vary from year to year due to basic biology, ocean conditions or spawning success. Declining fish populations have led to more restrictive regulations, shorter seasons, and lower quotas for many species, thus reducing the flexibility and economic viability of many fishing businesses today. External factors, including weather, ocean temperatures, fuel prices, supply and demand, and the overall state of the economy, can play a large role in any stage of the fishing and seafood industry. Fishermen and business owners must remain flexible and accommodate for these dynamic factors that make up what is referred to as the **market economy**. While it can be challenging, if all goes well, the result can be a successful and profitable business.

Resources for Teachers

References Specific to this Activity

Lipton, Douglas. (2004). *Understanding Fish Pricing: From Production to the Table.* College Park, MD: Maryland Sea Grant Extension. Retrieved from: http://www.mdsg.umd.edu/programs/extension/aquaculture/finfish/factsheets/FF5

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Pomeroy, C. & Dalton, M. (2003). *Socio-Economics of the Moss Landing Commercial Fishing Industry.* Report to the Monterey County Office of Economic Development. Retrieved from: www.psmfc.org/efin/docs/otherpublications/ML_Cmcl_Fishing_Ind_Report.pdf

Starr, R.M., Cope J.M., & Kerr L.A. (2002). *Trends in Fisheries and Fishery Resources*. La Jolla, CA: California Sea Grant College Program.

Acknowledgments

Curriculum Development and Design

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Additional Credit

Boat Owner/Fisherman data adapted with permission from the activity "Going Fishing" by Jeff Manker.

Original Artwork

© Ray Troll & NOAA Fisheries Service's "Green Seas/Blue Seas Project" (http://swfsc.noaa.gov/GreenSeas-BlueSeas)

Vocabulary

Aquaculture: The farming of freshwater and saltwater organisms.

Consumer: A person or organization that uses a particular product or service.

Dockside buyer: A person or company, located on popular fishing docks or wharfs, that buys seafood directly from fishermen.

Mariculture: A specialized branch of aquaculture involving the cultivation of marine organisms for food and other products in the open ocean or an enclosed section of the ocean (e.g. prawns, oysters, seaweed, abalone).

Market economy: An economy that operates by voluntary exchange in a free market and is not planned or controlled by a central authority; a capitalist economy.

Processor: Fish processors can be divided into two categories: primary and secondary processors. Primary processors are involved in the cleaning, filleting and quick freezing of fresh seafood. Secondary processors take the product from the primary processor and further processes it by canning or further cutting seafood products for retail markets.

Stakeholder: A person or organization that has a stake in a particular entity or resource such as a business, natural resource, or community.

Supply and demand: As demand for an item increases, supplies diminish and prices rise. If supplies are increased or demand decreases, prices fall. The relationship between "supply" and "demand" determines the price of a particular product.

Quota: A portion of a total allowable catch allocated to a particular boat, fishery, region, or nation.

Total Allowable Catch (TAC): The catch limit for a particular fishery, generally for a year or a fishing season. TACs are usually expressed in weight or for larger species, in numbers of fish.

Wholesaler/Distributor: A business that sells, transports, and delivers goods to a retailer or other entity that then sells to the end customer or consumer. Price conscious consumers often try to avoid further mark-ups in price by purchasing directly from a wholesaler.

Yield: In fisheries, yield is the percent of the original product available for sale after processing. The yield generally refers to the edible or marketable part of the seafood catch after cleaning, removing unwanted parts, etc.

Boat Owner/Fisherman

Wholesaler/Distributor

Dockside Buyer

Retail Market Owner

Processor

Restaurant Owner

Print back-to-back. Cut on the dotted lines to create the Role Cards.

You buy whole and processed seafood from a processor and then sell and deliver, usually in bulk, to retail markets or restaurants.

You are a fisherman based out of Monterey Bay. You are fishing for sardines, prawns, sole, albacore tuna, salmon, crab, or squid. You bring your catch to the harbor to be sold to a dockside buyer.

You buy seafood, usually at bulk prices, from wholesalers/ distributors. You then sell this seafood to retail market customers.

Your business is on the dock in the harbor. You buy seafood directly from the fisherman and then sell it to a processor.

You buy seafood, usually at bulk prices, from wholesalers/ distributors. You then sell this seafood to restaurant customers.

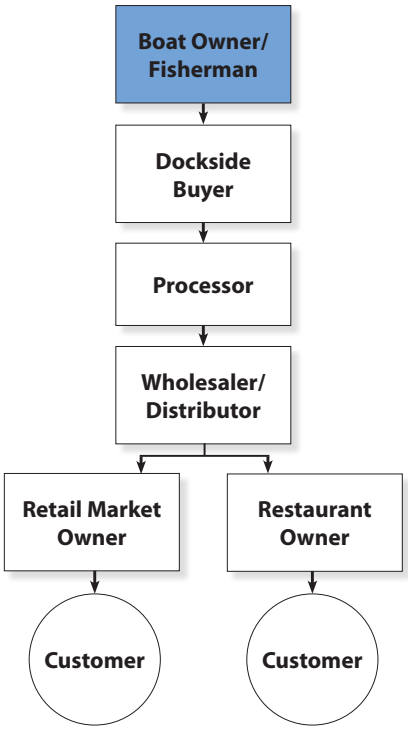
You are a processor buying whole fish and seafood from a dockside buyer. After processing (cleaning, removing unwanted parts, etc.) you sell the remaining product (yield) to a wholesaler/ distributor.

Name: _____

Date: _____

From Ocean to Table

Boat Owner/Fisherman Income/Expense Worksheet



1. Use the Background Data Tables as a resource for completing this worksheet.
2. Remember to accommodate any Fate Card adjustments that impact you directly.
3. Complete the initial calculations first.
4. Share your "Total Catch for Season" with the rest of your group. They will need this for completing their own calculations.
5. Complete all Income/Expense Calculations.

Baseline Data

Fish Type:_____

Boat Type:_____

Daily Catch:_____

Season Length:_____

Fate Card Instructions (if drawn):_____

Initial Calculations

1. Fuel costs for season

   (Season Length) x (gpd) x ($4/gallon) = _____

2. Total catch for season (in pounds)

   (Season Length) x (Daily Catch) = _____

3. Gross income from dockside sale of catch

   (Total Catch) x (Boat Owner/Fisherman price/lb to SELL) = _____

Profit/Loss Calculations: [Use calculations above and Background Data Table A]

Gross income from dockside sale of catch (from #3 above): _____

Expenses

A. Fuel costs for season (from #1 above) _____

B. Gear & Supplies _____

C. Licenses & Registrations _____

D. Seasonal Moorage _____

E. Insurance _____

F. Loan Payments _____

G. Other Direct Costs (utilities, ice, etc.) _____

H. Subtotal all non-wage related expenses: (A + B + C + D + E + F + G) = _____

I. Subtotal profit before wages: (Gross Income) - (H) = _____

J. Crew Wages: (# of crew) x (I) x (Crew Wage % of profit / 100) = _____

K. Boat Owner/Fisherman Season Profit/Loss: (I) – (J) = _____

L. Fate Card Adjustment to Season Profit if applicable _____

M. Final Season Profit _____

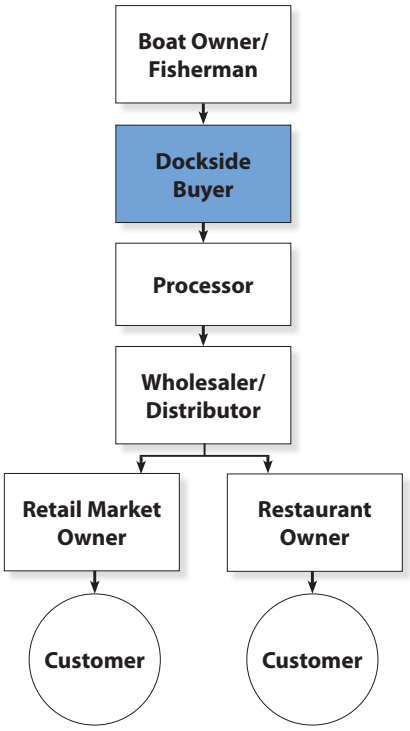
Profit as a price/lb: (M) / (Total Catch for Season from #2 above) = _____

Name: _____

Date: _____

From Ocean to Table

Dockside Buyer Income/Expense Worksheet



1. Use the Background Data Tables as a resource for completing this worksheet.
2. Remember to accommodate any Fate Card adjustments that impact you directly.
3. Complete the initial calculations first.
4. Once the Boat Owner/Fisherman has calculated his/her Total Catch for Season, use this figure to complete your own calculations.

Baseline Data

Fish Type:_____

Boat Owner/Fisherman Total Catch for Season:_____

Dockside Buyer price/lb to BUY: _____

Dockside Buyer price/lb to SELL:_____

Fate Card Instructions (if drawn):_____

Initial Calculations

1. Cash needed to BUY fish from Boat Owner/Fisherman

   (Boat Owner/Fisherman Total Catch for Season) x (Dockside Buyer price/lb to BUY) = _____

2. Gross income from sale of fish to Processor

   (Boat Owner/Fisherman Total Catch for Season) x (Dockside Buyer price/lb to SELL) = _____

Profit/Loss Calculations: [Use calculations above and Background Data Table B]

Gross income from sale of fish to Processor (from #2 above): _____

Expenses

A. Licenses & Registrations _____

B. Dock/Building Lease _____

C. Insurance _____

D. Loan Payments _____

E. Marketing/Advertising _____

F. Shipping/Trucking Expenses _____

G. Employee Wages _____

H. Other Direct Costs (supplies, ice, etc.) _____

I. Cash needed to BUY fish from Boat Owner/Fisherman (from #1 above) _____

J. Subtotal all expenses: (A + B + C + D + E + F + G + H + I) = _____

K. Dockside Buyer Season Profit/Loss: (Gross Income) - (J) = _____

L. Fate Card Adjustment to Season Profit if applicable _____

M. Final Season Profit _____

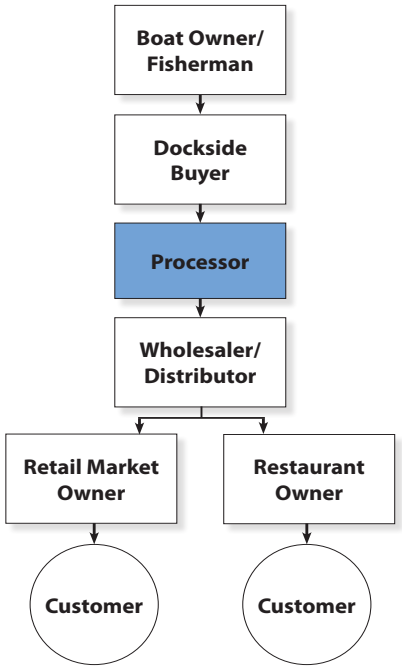
Profit as a price/lb: (M) / (Total Catch from Boat Owner/Fisherman) = _____

Name: _____

Date: _____

From Ocean to Table

Processor Income/Expense Worksheet



1. Use the Background Data Tables as a resource for completing this worksheet.
2. Remember to accommodate any Fate Card adjustments that impact you directly.
3. Complete the initial calculations first.
4. Once the Boat Owner/Fisherman has calculated his/her Total Catch for Season, use this figure to complete your own calculations.

Baseline Data

Fish Type:_____

Boat Owner/Fisherman Total Catch for Season:_____

Processor price/lb to BUY: _____

Percentage Yield: _____

Processor price/lb to SELL:_____

Fate Card Instructions (if drawn):_____

Initial Calculations

1. Cash needed to BUY fish from Dockside Buyer

   (Boat Owner/Fisherman Total Catch for Season) x (Processor price/lb to BUY) = _____

2. Processor Yield from Total Catch

   (Boat Owner/Fisherman Total Catch for Season) x (Percentage Yield / 100) = _____

3. Gross income from sale of fish to Wholesaler Distributor

   (Yield from Total Catch) x (Processor price/lb to SELL) = _____

Profit/Loss Calculations: [Use calculations above and Background Data Table B]

Gross income from sale of fish to Wholesaler/Distributor (from #3 above): _____

Expenses

A. Licenses & Registrations _____

B. Dock/Building Lease _____

C. Insurance _____

D. Loan Payments _____

E. Marketing/Advertising _____

F. Shipping/Trucking Expenses _____

G. Employee Wages _____

H. Other Direct Costs (supplies, ice, etc.) _____

I. Cash needed to BUY fish from Dockside Buyer (from #1 above) _____

J. Subtotal all expenses: (A + B + C + D + E + F + G + H + I) = _____

K. Processor Season Profit/Loss: (Gross Income) - (J) = _____

L. Fate Card Adjustment to Season Profit if applicable _____

M. Final Season Profit _____

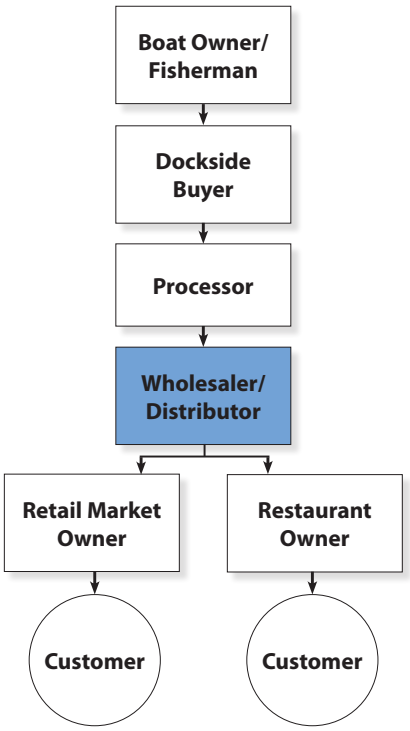
Profit as a price/lb: (M) / (Processor Yield from Total Catch) = _____

Name: _____

Date: _____

From Ocean to Table

Wholesaler/Distributor Income/Expense Worksheet



1. Use the Background Data Tables as a resource for completing this worksheet.
2. Remember to accommodate any Fate Card adjustments that impact you directly.
3. Complete the initial calculations first.
4. Once the Processor has calculated his/her Yield from Total Catch for season, use this figure to complete your own calculations.

Baseline Data

Fish Type:_____

Processor Yield from Total Catch:_____

Wholesaler/Distributor price/lb to BUY: _____

Wholesaler/Distributor price/lb to SELL:_____

Fate Card Instructions (if drawn):_____

Initial Calculations

1. Cash needed to BUY fish from Processor

   (Processor Yield from Total Catch) x (Wholesaler/Distributor price/lb to BUY) = _____

2. Gross income from sale of fish to Retail Market/Restaurant Owners

   (Processor Yield from Total Catch) x (Wholesaler/Distributor price/lb to SELL) = _____

Profit/Loss Calculations: [Use calculations above and Background Data Table B]

Gross income from sale of fish to Retail Market/Restaurant Owners (from #2 above):_____

Expenses

A. Licenses & Registrations _____

B. Building Lease _____

C. Insurance _____

D. Loan Payments _____

E. Marketing/Advertising _____

F. Shipping/Trucking Expenses _____

G. Employee Wages _____

H. Other Direct Costs (supplies, ice, etc.) _____

I. Cash needed to BUY fish from Processor (from #1 above) _____

J. Subtotal all expenses: (A + B + C + D + E + F + G + H + I) = _____

K. Wholesaler/Distributor Season Profit/Loss: (Gross Income) - (J) = _____

L. Fate Card Adjustment to Season Profit if applicable _____

M. Final Season Profit _____

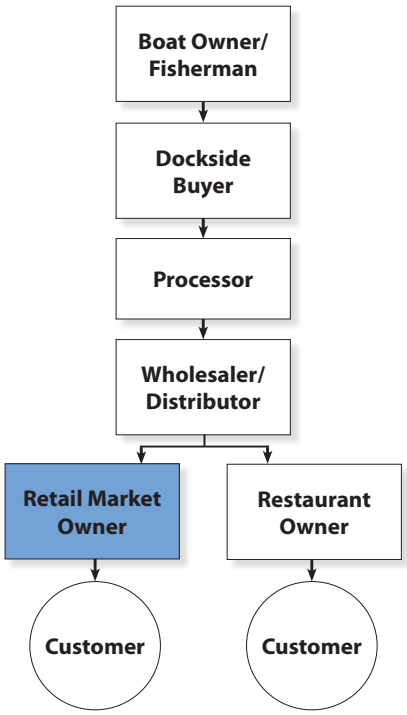
Profit as a price/lb: (M) / (Processor Yield from Total Catch) = _____

Name: _____

Date: _____

From Ocean to Table

Retail Market Owner Income/Expense Worksheet



1. Use the Background Data Tables as a resource for completing this worksheet.
2. Remember to accommodate any Fate Card adjustments that impact you directly.
3. Complete the initial calculations first.
4. In a single season (30 days) a Retail Market Owner will only purchase a small portion of a Processor's Yield from the Total Catch of any one species of fish. Use the Amount Purchased Seasonally in Table C as this portion to complete your calculations.

Baseline Data

Fish Type:_____

Amount Purchased Seasonally:_____

Retail Market Owner price/lb to BUY: _____

Retail Market Owner price/lb to SELL:_____

Fate Card Instructions (if drawn):_____

Initial Calculations

1. Cash needed to BUY fish from Wholesaler/Distributor

   (Amount Purchased Seasonally) x (Retail Market Owner price/lb to BUY) = _____

2. Gross income from sale of fish to Retail Market Customer

   (Amount Purchased Seasonally) x (Retail Market Owner price/lb to SELL) = _____

Profit/Loss Calculations: [Use calculations above and Background Data Table B]

Gross income from sale of fish to Retail Market Customer (from #2 above): _____

Expenses

A. Licenses & Registrations _____

B. Building Lease _____

C. Insurance _____

D. Loan Payments _____

E. Marketing/Advertising _____

F. Employee Wages _____

G. Other Direct Costs (supplies, ice, etc.) _____

H. Cash needed to BUY fish from Wholesaler/Distributor (from #1 above) _____

I. Subtotal all expenses: (A + B + C + D + E + F + G + H) = _____

J. Retail Market Owner Season Profit/Loss: (Gross Income) - (I) = _____

K. Fate Card Adjustment to Season Profit if applicable _____

L. Final Season Profit _____

Profit as a price/lb: (L) / (Amount Purchased Seasonally) = _____

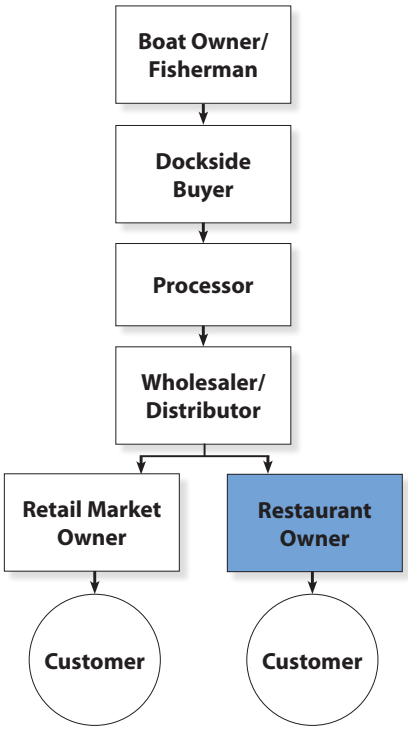
Price Paid by Retail Market Customer: (Retail Market Owner price/lb to SELL) = _____

Name: _____

Date: _____

From Ocean to Table

Restaurant Owner Income/Expense Worksheet



1. Use the Background Data Tables as a resource for completing this worksheet.
2. Remember to accommodate any Fate Card adjustments that impact you directly.
3. Complete the initial calculations first.
4. In a single season (30 days) a Restaurant Owner will only purchase a small portion of a Processor's Yield from the Total Catch of any one species of fish. Use the Amount Purchased Seasonally in Table C as this portion to complete your calculations.

Baseline Data

Fish Type:_____

Amount Purchased Seasonally:_____

Restaurant Owner price/lb to BUY: _____

Restaurant Owner price/lb to SELL:_____

Fate Card Instructions (if drawn):_____

Initial Calculations

1. Cash needed to BUY fish from Wholesaler/Distributor

   (Amount Purchased Seasonally) x (Restaurant Owner price/lb to BUY) = _____

2. Gross income from sale of fish to Restaurant Customer

   (Amount Purchased Seasonally) x (Restaurant Owner price/lb to SELL) = _____

Profit/Loss Calculations: [Use calculations above and Background Data Table B]

Gross income from sale of fish to Restaurant Customer (from #2 above): _____

Expenses

A. Licenses & Registrations _____

B. Building Lease _____

C. Insurance _____

D. Loan Payments _____

E. Marketing/Advertising _____

F. Employee Wages _____

G. Other Direct Costs (supplies, ice, etc.) _____

H. Cash needed to BUY fish from Wholesaler/Distributor (from #1 above) _____

I. Subtotal all expenses: (A + B + C + D + E + F + G + H) = _____

J. Restaurant Owner Season Profit/Loss: (Gross Income) - (I) = _____

K. Fate Card Adjustment to Season Profit if applicable _____

L. Final Season Profit _____

Profit as a price/lb: (L) / (Amount Purchased Seasonally) = _____

Price Paid by Restaurant Customer: (Restaurant Owner price/lb to SELL) = _____

VOICES of the BAY

From Ocean to Table

Background Data Tables

Table A: Boat Owner/Fisherman Expenses

Fishery	Boat Type	# of Crew	Crew Wages (% of profit)	Daily Catch	Season Length	Boat Gallons/ Day (gpd)	Gear & Supplies	Licenses & Registrations	Seasonal Moorage	Insurance	Loan Payments	Other Direct Costs
Sardines	Purse Seiner	5	10% each	40,000 lbs	30 days	300 gpd	$8,000	$2,500	$1,500	$2,000	$3,000	$2,000
Prawns	Trawler	3	15% each	900 lbs	30 days	300 gpd	$12,000	$2,500	$1,000	$1,000	$3,000	$2,000
Sole	Bottom Trawler	3	15% each	2,800 lbs	30 days	250 gpd	$12,000	$2,500	$1,000	$1,000	$3,000	$2,000
Albacore Tuna	Troller	2	15% each	1,500 lbs	30 days	100 gpd	$3,000	$2,500	$1,500	$1,000	$3,000	$2,000
Salmon	Troller	2	15% each	500 lbs	30 days	60 gpd	$6,000	$2,500	$1,000	$1,000	$3,000	$2,000
Crab	Various	3	15% each	2,000 lbs	30 days	350 gpd	$10,000	$2,500	$1,000	$1,500	$3,000	$2,000
Squid	Purse Seiner	5	10% each	35,000 lbs	30 days	350 gpd	$11,000	$2,500	$1,500	$2,000	$3,000	$2,000

Table B: Other Stakeholder Expenses

Role Category	Licenses & Registrations	Dock/ Building Lease	Insurance	Loan Payments	Marketing/ Advertising	Shipping/ Trucking Expenses	Other Direct Costs	Employee Wages
Dockside Buyer	$1,500	$1,000	$100	$1,000	$1,000	$1,500	$1,000	$2,000
Processor	$1,500	$3,500	$1,500	$5,500	$1,000	$5,000	$5,000	$9,000
Wholesaler/ Distributor	$1,500	$2,000	$1,500	$5,000	$1,000	$10,000	$3,000	$7,000
Retail Market Owner	$500	$200	$250	$500	$200	-	$300	$1,000
Restaurant Owner	$500	$300	$300	$750	$200	-	$800	$2,000

Table C: Price to Buy and Sell Fish

	Boat Owner/ Fisherman	Dockside Buyer		Processor			Wholesaler/ Distributor		Retail Market Owner			Restaurant Owner		
Fish Type	**Sell**	**Buy**	**Sell**	**Buy**	**Percentage Yield**	**Sell**	**Buy**	**Sell**	**Buy**	**Amount Purchased Seasonally**	**Sell**	**Buy**	**Amount Purchased Seasonally**	**Sell**
Sardines	$0.08/lb	$0.08/lb	$0.12/lb	$0.12/lb	50%	$0.35/lb	$0.35/lb	$0.45/lb	$0.45/lb	275 lbs	$12.00/lb	$0.45/lb	300 lbs	$18.00/lb
Prawns	$10.00/lb	$10.00/lb	$11.00/lb	$11.00/lb	80%	$17.00/lb	$17.00/lb	$20.00/lb	$20.00/lb	2000 lbs	$23.00/lb	$20.00/lb	400 lbs	$40.00/lb
Sole	$1.10/lb	$1.10/lb	$1.27/lb	$1.27/lb	80%	$2.25/lb	$2.25/lb	$4.00/lb	$4.00/lb	1000 lbs	$9.00/lb	$4.00/lb	300 lbs	$30.00/lb
Albacore Tuna	$1.00/lb	$1.00/lb	$2.15/lb	$2.15/lb	75%	$4.50/lb	$4.50/lb	$6.25/lb	$6.25/lb	1500 lbs	$9.00/lb	$6.25/lb	450 lbs	$22.00/lb
Salmon	$6.00/lb	$6.00/lb	$6.75/lb	$6.75/lb	85%	$11.20/lb	$11.20/lb	$18.00/lb	$18.00/lb	2500 lbs	$21.58/lb	$18.00/lb	650 lbs	$45.00/lb
Crab	$2.25/lb	$2.25/lb	$2.59/lb	$2.59/lb	50%	$8.00/lb	$8.00/lb	$15.00/lb	$15.00/lb	2500 lbs	$30.00/lb	$15.00/lb	600 lbs	$60.00/lb
Squid	$0.25/lb	$0.25/lb	$0.35/lb	$0.35/lb	65%	$1.00/lb	$1.00/lb	$1.20/lb	$1.20/lb	1200 lbs	$8.00/lb	$1.20/lb	475 lbs	$20.00/lb

VOICES of the BAY

From Ocean to Table

FATE CARD

VOICES of the BAY

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From Ocean to Table

FATE CARD

Print back-to-back. Cut on the dotted lines to create the Fate Cards.

Boat Owner/Fisherman

Stormy weather prevents
you from fishing.
Lose 2 days of fishing.

Boat Owner/Fisherman

Man injured. Return early.
Lose 1 day of fishing.

Boat Owner/Fisherman

Replace lost fishing gear.
Subtract $5,000 from season profit.

Processor

Employee illness slows
down processing.
Subtract $2,000 from season profit.

Boat Owner/Fisherman

Poor fishing.
Lose 2 days of fishing.

Retail Market Owner

Slow sales - throw out unsold fish.
Subtract $500 from season profit.

Boat Owner/Fisherman

Regulators close season early.
Lose 3 days of fishing.

Boat Owner/Fisherman

Tangled gear.
Lose 1 day of fishing.

Processor

Equipment breakdown.
Subtract $5,000 from season profit.

VOICES of the BAY

From Ocean to Table

FATE CARD

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Print back-to-back. Cut on the dotted lines to create the Fate Cards.

Wholesaler/Distributor

Delivery truck breaks down.
Subtract $2,000 from season profit.

Boat Owner/Fisherman

A friend quits fishing and gives you his gear.
Pay nothing for gear this season.

Restaurant Owner

Seafood Festival in town!
Sell an extra 100 pounds of fish.

Dockside Buyer

Your competition down the wharf goes out of business.
Add $2,500 to season profit.

Boat Owner/Fisherman

High demand for product!
Increase fish SELL price by $1.00/lb.

Retail Market Owner

Sunshine brings the BBQ out early.
Sell an extra 100 pounds of fish.

Restaurant Owner

Slow sales - throw out unsold fish.
Subtract $500 from season profit.

Boat Owner/Fisherman

Regulators extend season!
Gain 2 more fishing days.

Dockside Buyer

Power outage shuts down freezer unit.
Subtract $500 from season profit.

From Ocean to Table

Commercial Fishery Stakeholder Flowchart

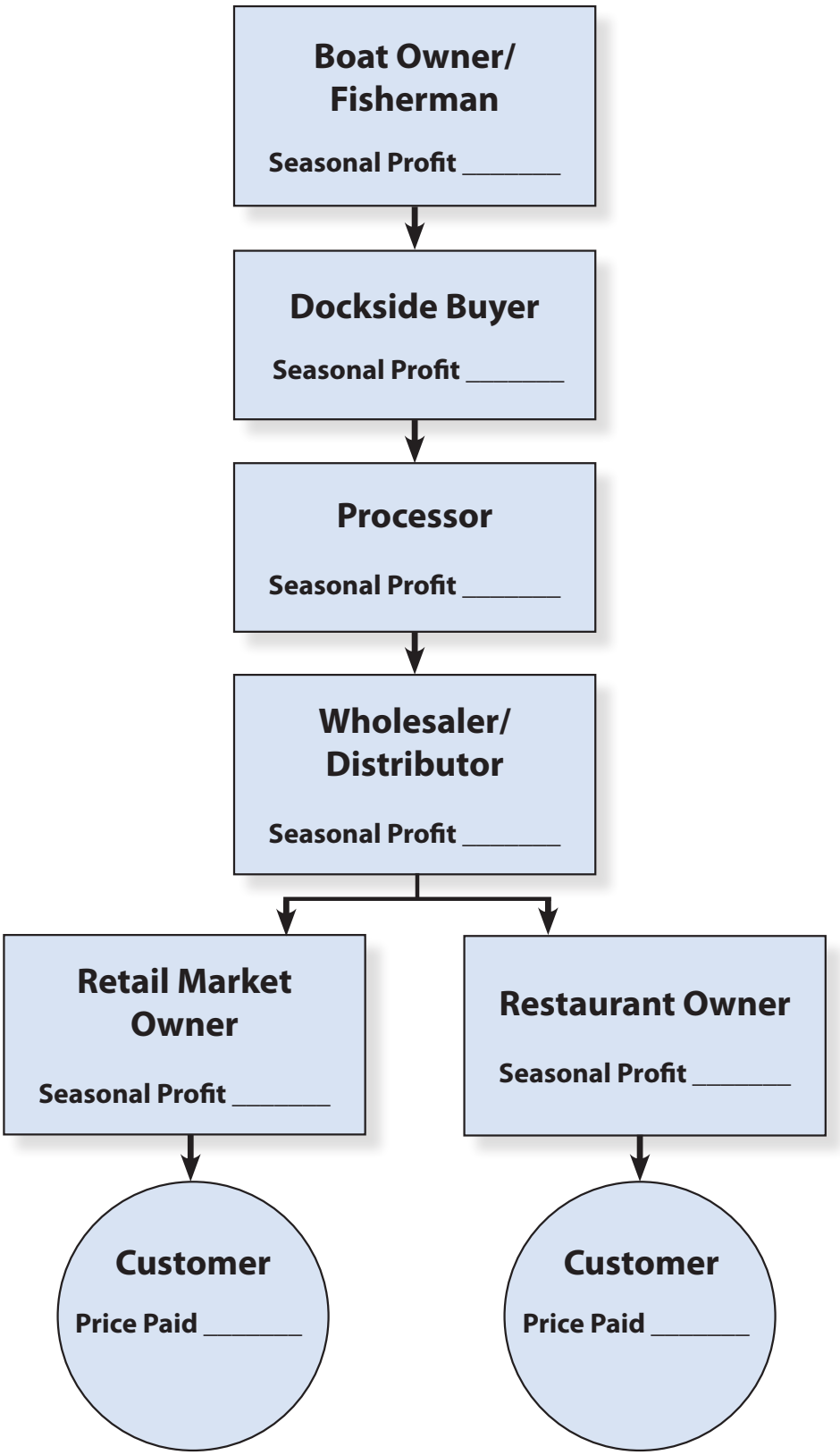
Group Member Names: _____ **Fishery:** _____

_____

_____

_____

_____



From Ocean to Table

Post-Activity Student Worksheet

Name: _____

Date: _____

Answer the following questions after completing one or more rounds of "ocean to table" calculations.

What was your role? _____

What type of seafood did your group catch, process, and sell? _____

1. Which member of your group (stakeholder) had the highest expenses associated with this fishery?

2. Which stakeholder in your group made the most money?

3. How did the Fate Card affect the journey from ocean to table?

4. How did the Fate Card affect the final price paid by a retail market or restaurant customer?

5. What strategies might your group use to bring the final cost to the retail market or restaurant customer down?

6. Which stakeholder faces the greatest economical risk?

7. Which stakeholder role is most attractive in terms of profit?

8. Which stakeholder role are you most attracted to regardless of profit? Why?